CHAPTER 3: MAIN DRIVE SECTION

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1. Theory of Operation

1. Main Drive

1. Drum rotation

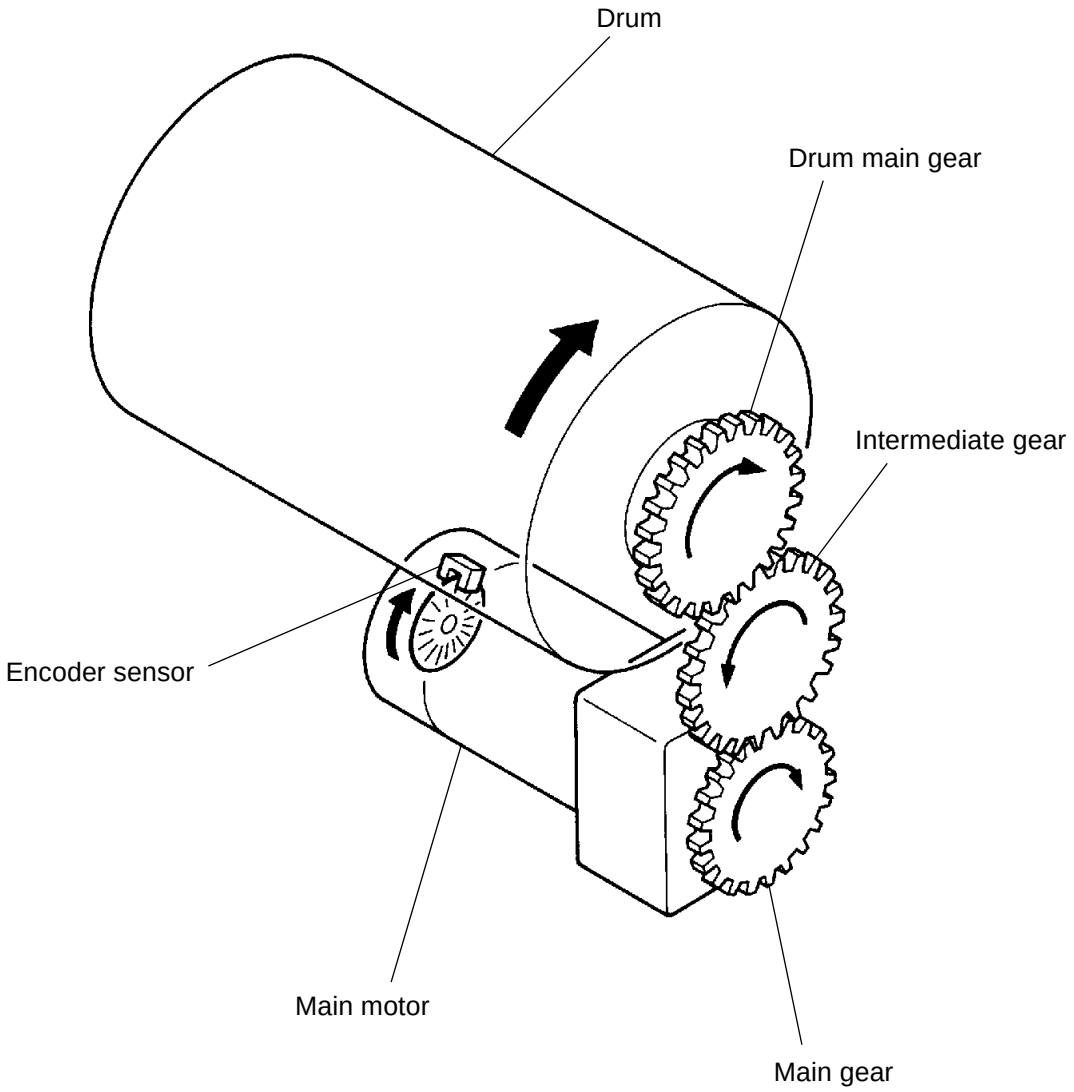
- The Motor gear on the Main motor rotates the Intermediate gear.
- The Intermediate gear rotates the Drum main gear.
- The Drum rotates with the Drum main gear.

2. First paper feed area drive

- When the Paper feed clutch is activated, the main drive is transferred to the First paper feed drive via clutch.

3. Main motor encoder sensor

- The Encoder sensor on the Main motor keeps check on the Main motor rotation speed and Drum position.

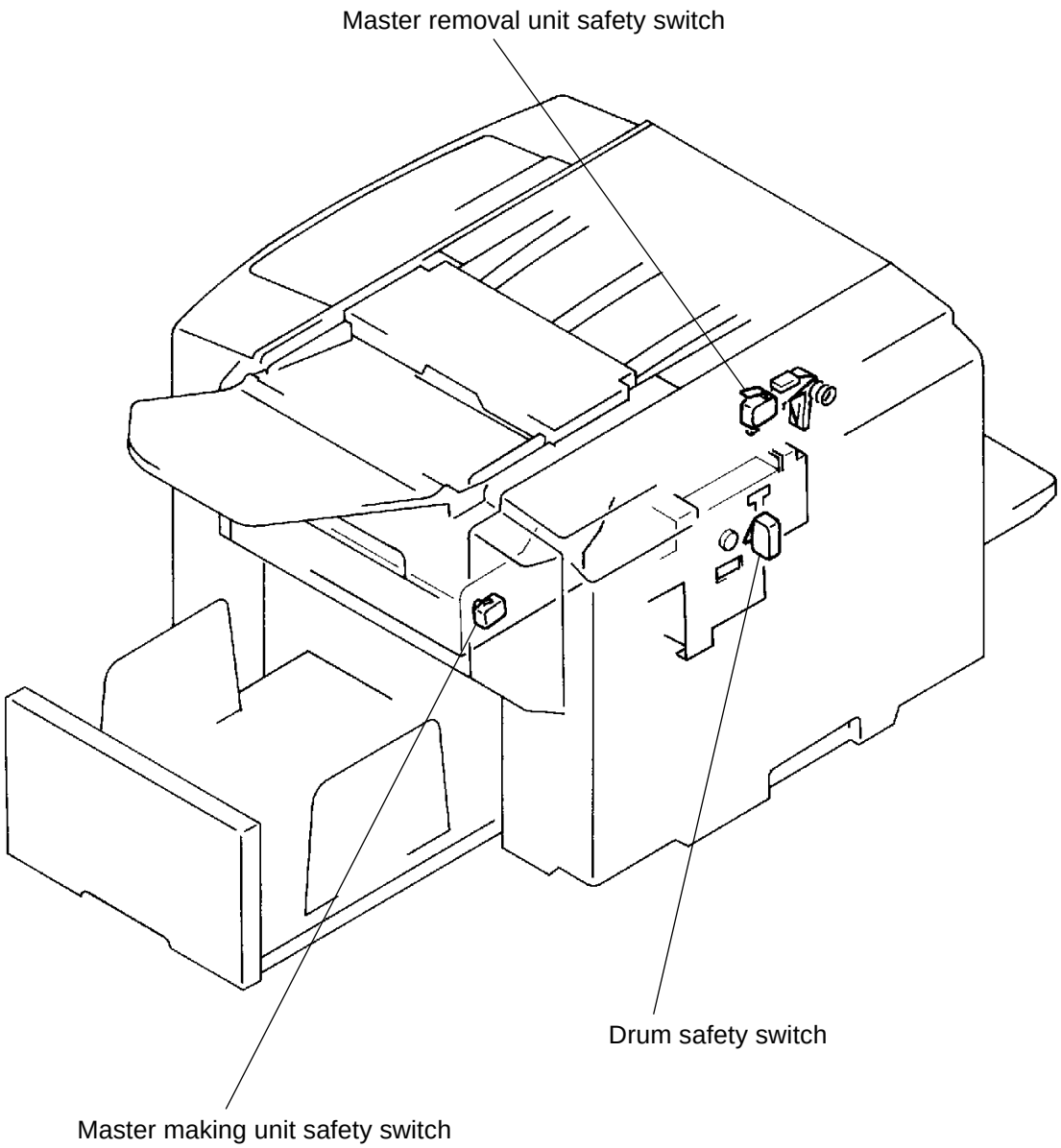


2. Main Motor Safety Switch

1. Following all three Safety switches must be activated to run the Main motor.

- Master removal unit safety switch
- Master making unit safety switch
- Drum safety switch

The same three switches act also as Safety switches for the Thermal power.



3. Drum Positions

1. Sensors for the Drum positioning

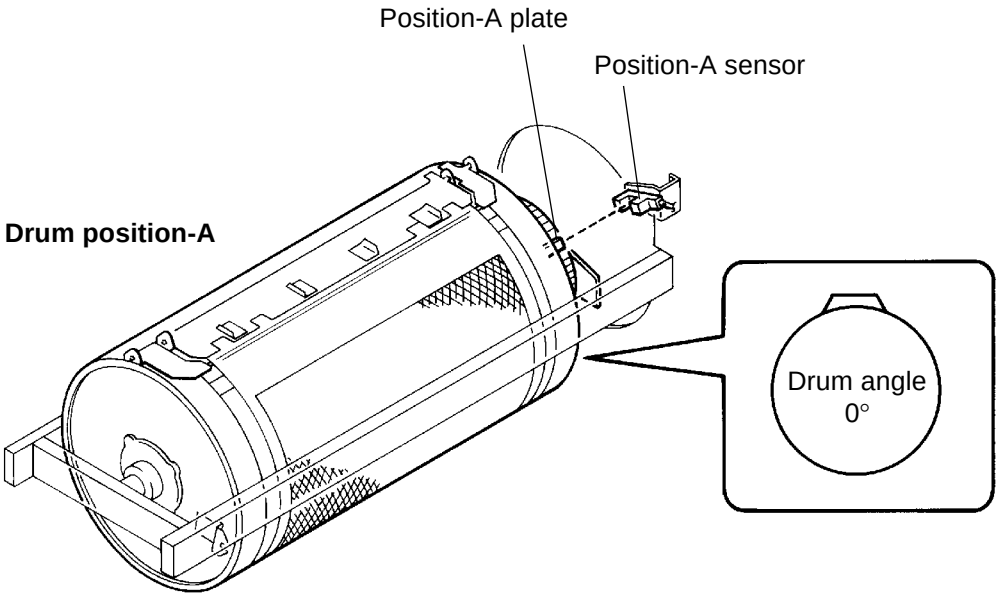
- The position of the Drum is determined by the Position-A sensor and Encoder sensor on the Main motor.

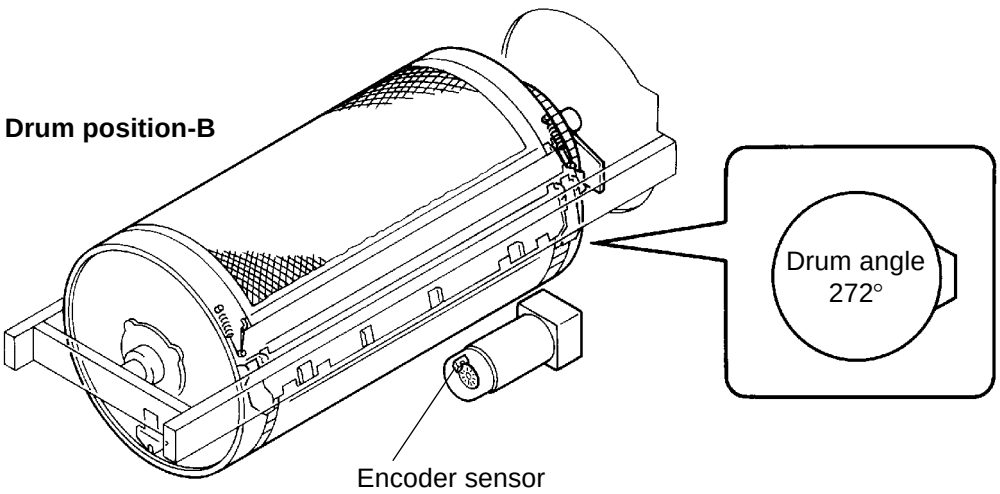
2. Position-A

- This is the position where the Clamp plate is at the top of the Drum.
- This position is also referred as the 0° position.
- The Clamp plate opens and closes at this position.
- This is the position where the light path of the Position-A sensor is cut by the Position-A plate on the Drum.

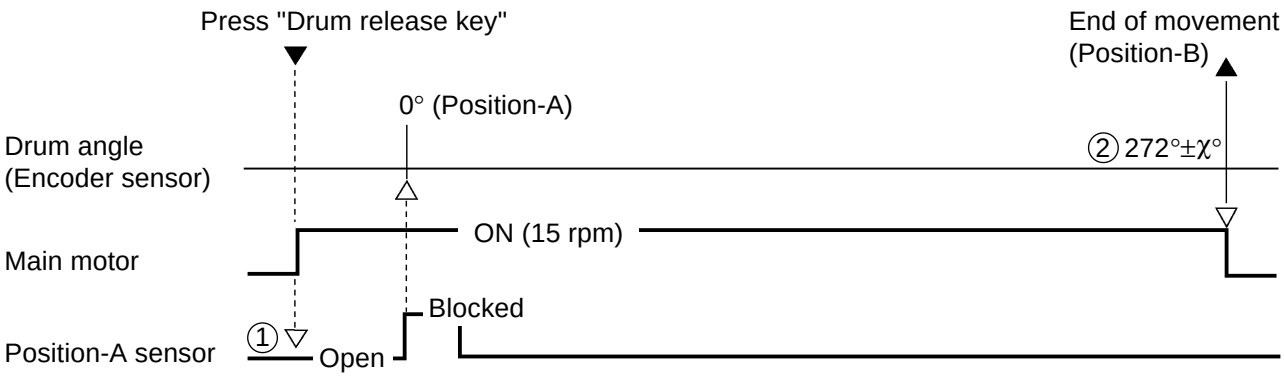
3. Position-B

- Position-B of the Drum is when the Drum rotates 272° from the 0° position (Position A), counted by the Encoder sensor.
- This is the position where the Drum is pulled out or put into the machine.





Drum Release Movement (Drum B-Position) Timing Chart



① If the light path of the Position-A sensor is open when the Drum release key is pressed, the Drum is rotated until the sensor is blocked to bring the Drum to the Position-A.
If the light path of the Position-A sensor is already blocked (Drum at **0**°), the above Drum rotation will not be made.

② When the Drum rotates to **272**°±χ° (Position-B), the Main motor turns off and completes the Drum release movement.
The angle "χ" can be adjusted by Memory Switch (Test Mode) **No. 207**.

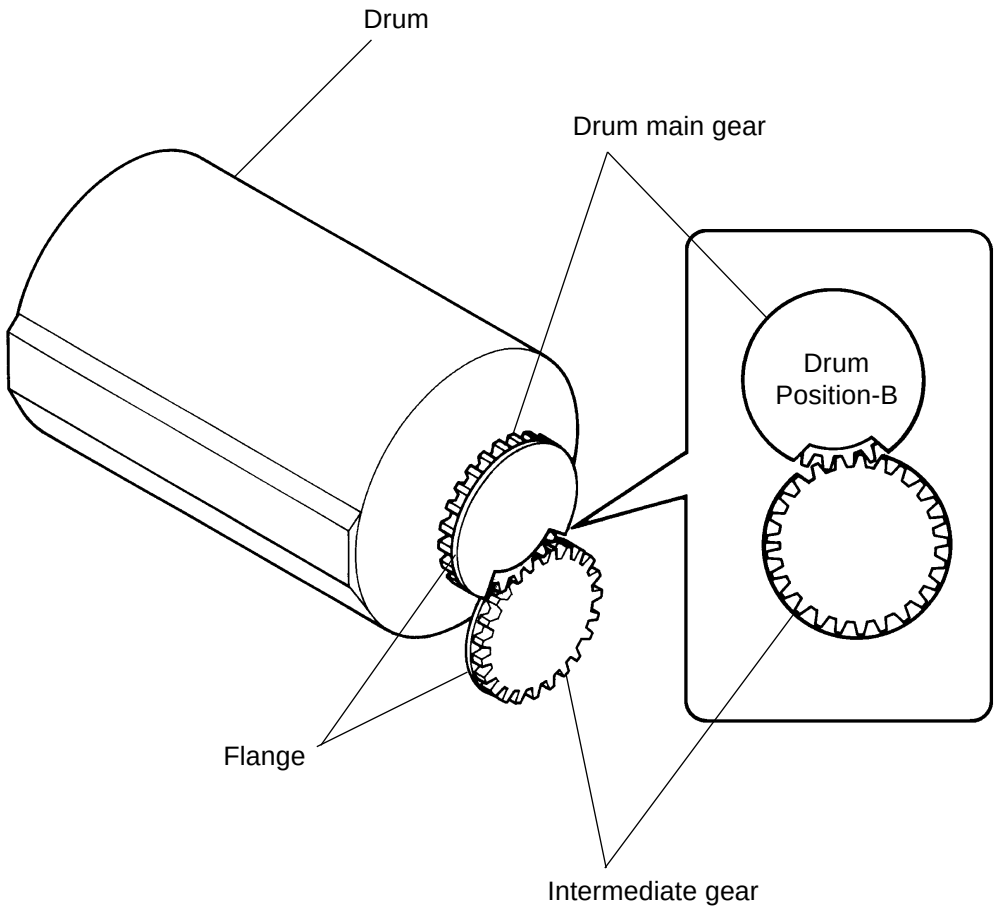
- If the Encoder sensor does not output the Main motor rotation signal within certain set time, the machine assumes that the Main motor has locked and displays error message **[E 01]**.

- If over load current is detected for **0.3 seconds** after the Main motor is activated, the machine assumes that the Main motor has locked and displays error message **[E 01]**.

- If the Position-A detection sensor does not detect the Drum even though the Encoder sensor outputs Main motor rotation signal after the Main motor is activated, the machine assumes that the Position-A sensor is faulty and displays error message **[E 06]**.

4. Drum Locking System

1. The Drum is designed to unlock only when the Drum is at Position-B.

At any other Drum position, the flanges around the Intermediate gear and Drum main gear locks each other and prevents the Drum from pulled out.

Only at Position-B, the flanges on the two gears are eliminated to free the Drum.